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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,778	10/23/2003	John Russell McKay	THOLAM P214US	1975
20210	7590	08/23/2004	EXAMINER	
DAVIS & BUJOLD, P.L.L.C. FOURTH FLOOR 500 N. COMMERCIAL STREET MANCHESTER, NH 03101-1151			MAI, NGOCLAN THI	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/693,778

Applicant(s)

MCKAY, JOHN RUSSELL

Examiner

Ngoclan T. Mai

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al. or Rodiger et al. or Dennis et al. in view of AU 9918399.

Roy et al or Rodiger et al disclose processes for making hard metal or cermet sintered body by sintering green parts comprising tungsten carbide particles and cobalt or cobalt alloy as a binder utilizing microwave heating. See Roy et al., col. 2, line 54 to col. 3, line 34 and Rodiger et al, abstract, Dennis et al., col. 2, lines 41-60.

The difference between primary references, i.e., Roy et al, Rodiger et al and Dennis et al., and the claimed invention are that the primary references do not teach lowering the temperature of the microwave sintered tungsten carbide gradually to

Art Unit: 1742

cryogenic levels, and raising the temperature of the microwave sintered tungsten carbide gradually back to ambient temperature.

AU 9918399 discloses a method for treating sintered carbides parts such as tungsten carbide sintered with cobalt binder in order not only to increase the wear resistance of sintered tungsten carbide parts and but also to relieve inherent stresses in the structure. See page 3, lines 13-23. The method comprises progressively cooling the tungsten carbide parts from room temperature to a temperature at a rate within the ability of the part to dissipate internal stresses. AU 9918399 teaches that the temperature of the cooling chamber is preferably controlled such that the progressive drop in temperature of the parts is sufficiently slow to allow stresses to dissipate and that the rates in the region of -1°F per minute are satisfactory for tungsten carbide drill bit buttons. See page 4, lines 2-25. Note that the examiner has considered the slow rates of cooling (-1°F per minute) read on the claimed "lowering the temperature ... gradually". AU 9918399 teaches that the parts are lowered to a temperature preferably about -300°F and held at this temperature for a period of 10-15 hours before warming the sintered tungsten carbide parts at a rate of $+1^{\circ}\text{F}$ per minute to room temperature. See page 5, lines 2-18. Again the examiner has considered the rate of warming ($+1^{\circ}\text{F}$ per minute) read on the claimed "raising the temperature ... gradually back to ambient temperatures."

Based on this teaching it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the cryogenic treating taught by AU 9918399 to treat the sintered tungsten carbide formed by the methods taught by Roy et

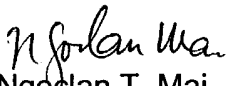
Art Unit: 1742

al., Rodiger et al. or Dennis et al in order to increase the wear resistance of sintered tungsten carbide parts of Roy et al., Rodiger et al., or Dennis et al. and as the same time to relieve inherent stresses in their structure.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoelan T. Mai whose telephone number is (571) 272-1246. The examiner can normally be reached on 7:30-4:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ngoelan T. Mai
Primary Examiner
Art Unit 1742

n.m.